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Source: American Malacological Bulletin, 39(1) : 1-2

Published By: American Malacological Society

URL: <https://doi.org/10.4003/006.039.0103>

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RESEARCH NOTE

First records of the invasive slug *Boettgerilla pallens* Simroth, 1912 (Boettgerillidae) in Washington State, U.S.A.

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Abstract: The worm slug *Boettgerilla pallens* Simroth, 1912, is reported in Washington State for the first time with records from King, Pierce and Snohomish counties.

Key words: Worm slug, subterranean gastropod, exotic species, non-native, Pacific Northwest

We present the first records of the exotic slug *Boettgerilla pallens* Simroth, 1912 (Fig. 1) from Washington State. Specimens were collected by the authors in two counties, King and Snohomish (Table 1). Three specimens were found underneath potted plants in commercial garden centers, two from the same location in Seattle, and one from Marysville. Another specimen was collected in Ravenna Park from under



Figure 1. *Boettgerilla pallens* Simroth, 1912 collected in Ravenna Park, Seattle, Washington.

a log in the forested section along a ravine, highlighting that this species has potentially become established in natural areas. These four specimens have been vouchered and deposited at the Oregon State Arthropod Collection (OSAC 2022) and the Burke Museum Malacology Collection (for catalogue numbers, see Table 1). Additional records of *B. pallens* in King and Pierce Counties are reported from iNaturalist and are also included in Table 1.

To confirm our identification, we sequenced partial fragments of the cytochrome C oxidase subunit I (COI) from our four specimens following the methods of Reich *et al.* (2015). After editing with Geneious Prime® software (North America Biomatters Inc, San Diego, CA), the final sequences were 444 bp (GenBank Accession Number OM003581) and 551 bp

Table 1. Date and locality records for the invasive worm slug *Boettgerilla pallens* in Washington State, U.S.A. iNat, iNaturalist; OSAC, Oregon State Arthropod Collection; UWBM, University of Washington, Burke Museum.

Catalogue No.	GenBank No.	Date	Location	City, ZIP	County	Latitude	Longitude	Environment	No. slugs
iNat 50685894	NA	23 Jun 2020	Taylor Ave N & 5th Ave N	Seattle, 98109	King	47.63478	-122.34566	Forested urban park	1
OSAC0001262676	OM003581	17 Aug 2021	5275 California Ave SW	Seattle, 98136	King	47.55407	-122.38716	Commercial garden center	2
OSAC0001262677	OM003583								
OSAC0001262678	OM003584	18 Aug 2021	3915 Sunnyside Blvd	Marysville, 98270	Snohomish	48.04538	-122.10853	Commercial garden center	1
UWBM 58352	OM003582	9 Oct 2021	5520 Ravenna Ave NE	Seattle, 98105	King	47.67185	-122.30442	Forested urban park	1
iNat 97828266									
iNat 123406768	NA	25 Jun 2022	2421 166 th Ave Ct E	Bonney Lake, 98391	Pierce	47.23499	-122.20718	Residential neighborhood	2
iNat 123406843									
iNat 123789220	NA	27 Jun 2022	950 NW Carkeek Park Rd	Seattle, 98177	King	47.70471	-122.36399	Forested urban park	2

(OM003582–OM003584) long respectively. The longer sequences were a 100% match for *B. pallens* on both the Barcode of Life (BOLD) (Ratnasingham and Hebert 2007) and GenBank (Benson *et al.* 2013) databases. The shorter sequence was a 97.52% and 97.49% match for *B. pallens* on BOLD and GenBank respectively. All sequences have been deposited in GenBank under accession numbers OM003581–3584.

Diagnostic morphological characters for *B. pallens*, and background regarding the basic ecology and unclear status of the species as an economically important pest can be found in the paper reporting its discovery in Oregon (Mc Donnell *et al.* 2020) and references therein. While the Washington records reported here are relatively recent, its geographic distribution and presence in several greenbelt areas suggest *B. pallens* has been present in the state for some time.

ACKNOWLEDGMENTS

Surveys that lead to the discovery of this species in Washington were funded by the California Department of Food and Agriculture Specialty Crop Multi-State Program (CDFA SCMP) grant #12509488. We are grateful to Leanna Van Slambrook for conducting the molecular analysis. We also

thank community scientists and iNaturalist observers Tobias Hays and E.J. Okeefe for sharing their field observations.

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Received: 28 September 2022; Accepted: 19 November 2022; Final revisions received: 30 November 2022; Published: 15 December 2022